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THE UNIVERSITY OF ALBERTA

PERCEPTION OF CONTROL

by

DEBORAH L. McTAGGART

(C)

A THESIS

SUBMITTED TO THE FACULTY OF GRADUATE STUDIES AND RESEARCH

IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE

OF MASTER OF SCIENCE

DEPARTMENT OF PSYCHOLOGY

EDMONTON, ALBERTA

FALL, 1986

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FACULTY OF GRADUATE STUDIES AND RESEARCH

The undersigned certify that they have read, and recommend to the Faculty of Graduate Studies and Research, for acceptance, a thesis entitled Perception of Control submitted by Deborah L. McTaggart in partial fulfilment of the requirements for the degree of Master of Science.

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Date August 25, 1986

Abstract

The purpose of this thesis was to examine a two-process model for the perception of control proposed by Rothbaum, Weisz, and Snyder (1982). The authors propose that a perception of control is achieved by primary process (attempts to change the environment) or by secondary process (attempts to change the self) for four types of control: predictive, vicarious, illusory and interpretive. Preference for primary and secondary process in each type of control was tested by presenting 324 female university students with an opportunity to select appropriate courses of action for characters in stories. The response options reflected primary control, secondary control and passive control for a character who succeeded or failed in the situation. Three individual difference measures of the reader were measured: locus of control, self-esteem, and a scale measuring preference for primary versus secondary control. Results supported the predictions that control is preferred to passivity, and that primary process control is preferred over secondary process control. Preference for primary process control was positively correlated with an internal locus of control and with high self-esteem.

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Introduction

The perception of control has generally been defined as an inference about the self, i.e., how the individual views his capacity to have an impact on the environment. In a variety of psychological theories (Kelly, 1955; Rotter, 1966; de Charms, 1968; Brehm, 1968; Langer, 1977), control has been an important concept. Within these theories, the perception of control has been seen as having positive value for the individual. Most research has focused on control as an enduring attitude or on the abrogation of control in depression and in learned helplessness paradigms. The expectation for personal control in obtaining reinforcements has been valued as a way to limit aversive experience, and to enhance achievement and adjustment. In this research an individual's attempts to achieve or maintain a perception of control have rarely been examined. Rothbaum, Weisz, and Snyder (1982) have argued recently for a two-process view of control: primary control whereby an individual attempts to change the environment, and secondary control whereby an individual attempts to change the self in order to accommodate the environment. The authors have argued that an examination of existing literature, which deals either directly or indirectly with the perception of control, suggests that there is evidence for continued attempts to maintain control that have been largely unrecognized.

In the Rothbaum model, control is treated as a motivational construct that is expressed by primary or secondary processes. De Charms (1968) has advocated one of the clearest positions on control as a motivational construct. He emphasized the drive to be an "Origin", a person whose choices determine his behavior, as opposed to a "Pawn", a person whose behavior is directed from external forces. However, de Charms did not develop specific hypotheses regarding how an individual might maintain the "Origin" stance. Similarly, White's (1959) description of the drive to attain a sense of influence in surroundings in desired ways did not include specific mechanisms whereby an individual would manifest the drive to competence. He did suggest that representative behavior would be directed, selective, and persistent. These two active and striving descriptions of human propensities for control stand in sharp contrast to a body of literature that Rothbaum et al. cite as supporting an "uncontrollability model".

In large part, support for the "uncontrollability model" consists of data from locus of control and learned helplessness research. The authors of the two-process model question the interpretation of behavioral and attributional observations that support the "uncontrollability model". These include passive, withdrawn and submissive behaviors, as well as causal attributions to chance, to powerful others and to severe limitations in ability, particularly in situations of failure. The basic premise of the

two-process model of control is that individuals will attempt to sustain control by changing the environment (primary process control) as well as by changing themselves in order to fit in with the environment (secondary process control). In the Rothbaum et al. model, four types of control have been proposed: predictive, illusory, vicarious, and interpretive. Each type of control may be exhibited in primary or in secondary form. Primary and secondary processes are differentiated by the types of attributions that are made and the occurrence and/or instrumentality of accompanying behaviors. In the discussion that follows, evidence cited as relevant for each type of control will accompany descriptions of primary and secondary processes. Table 1 summarizes the four types of control in both primary and secondary process, and follows Table 1 in Rothbaum et al. (p. 12).

Table 1

Primary and Secondary Processes in Four Types of Control

Predictive Control

Primary process

Attempts to predict events to succeed at them. Active behavior and attributions to the self's effort and ability are likely in tasks of moderate difficulty.

Secondary process

Attempts to predict events to avoid disappointment. Passive and withdrawn behavior, especially in tasks of moderate difficulty. Active, persistent behavior in extremely easy or difficult situations. Attributions to severely limited ability are likely.

Illusory Control

Primary process

Attempts to influence chance determined outcomes. Active behavior in chance and skill situations and attributions to self's effort and ability are likely.

Secondary process

Attempts to associate with chance. Active behavior in chance situations but passive and withdrawn behavior in skill situations and attributions to chance are likely.

Vicarious Control

Primary process

Attempts to manipulate powerful others or imitate their power or ability. Instrumental submissive behavior or manipulative behavior; attributions to the self's effort and ability are likely.

Secondary process

Attempts to associate with powerful others. Noninstrumental, submissive behavior and attributions to others are likely.

Interpretive Control

Primary process

Attempts to understand problems to be able to solve them or otherwise master them. Active behavior and attributions to the self's efforts and ability are likely.

Secondary process

Attempts to understand problems so as to derive meaning from them or otherwise master them. Passive, withdrawn, and submissive behavior and attributions to severely limited ability, chance, and powerful others are likely.

Primary process attempts to achieve predictive control are characterized by active behavior and attributions to the self's effort and ability, particularly in moderately difficult tasks. In primary process form, the goal of predictive efforts is to enable the individual to succeed. Secondary process attempts to achieve predictive control are characterized by passive and withdrawn behaviors in moderately difficult tasks and by active behaviors in extremely easy or difficult tasks. These behaviors are likely to be accompanied by attributions to severely limited ability. In secondary process form, the goal of predictive efforts is to avoid disappointment. Avoidance of moderately difficult tasks after exposure to failure (Frankel & Snyder, 1978) has been interpreted by Rothbaum et al. as a lowering of expectations to avoid future disappointment. Studies show that success may be avoided or undermined (Mettee, 1971; Wortman, Costanzo & Witt, 1973; Aronson & Carlsmith, 1962) to avoid disappointment if it is perceived to entail the likelihood of subsequent failure.

A second form of control is illusory control. In primary process form, illusory control is characterized by attempts to influence chance determined outcomes, by active behavior in chance and in skill situations, and by attributions to the self's effort and ability. In secondary process form, illusory control is characterized by attempts to rely on chance, by active behavior in chance situations and passive behavior in skill situations, and by

attributions to chance. Data supporting this form of control have been drawn from two literatures: illusion of control and locus of control. Langer (1975, 1977) found that people had unwarranted expectations about their ability to influence chance-determined outcomes. She suggested that people may confuse chance tasks for skill tasks given choice, familiarity, and involvement. According to the two-process model, chance may be perceived as a force to be aligned with, i.e., the individual may gain luck as an ability. Individuals with an external locus of control have shown tendencies to view chance tasks as yielding dispositional information, to prefer chance over skill tasks and to be more passive (Karabenick & Srull, 1978; Karabenick & Addy, 1979). The two-process interpretation of these results is that these individuals see luck as controllable and it predicts that they will show a tendency to utilize secondary forms of illusory control.

The third form of control proposed within the two-process model is vicarious control. In primary form this is manifested by attempts to manipulate powerful others, as instrumental submissive or manipulative behavior, and in attributions to the self's effort and ability. In secondary form it is manifested as attempts to associate with powerful others, as noninstrumental submissive behavior, and in attributions to others. The concept of vicarious control was developed from a consideration of two constructs rooted in psychoanalytic theory: identification and individuation.

Identification is similar to Bandura's (1969) description of the imitation of powerful others but differs in that it is not necessarily instrumental behavior. Examples of noninstrumental imitation are subservient behavior elicited by powerful others (Bandura, 1969), and children's imitation of a dominant parent's preference for pictures where the parent could have no knowledge of the child's selection (Hetherington & Frankle, 1967). Fromm (1941) discussed noninstrumental behavior as a reaction to individuation processes which is expressed in tendencies to submissiveness and conformity. Self-awareness following failure (Scheier, Carver, & Gibbons, 1979) and disinhibition resulting from deindividuation (Johnson & Downing, 1979; Diener, 1979) has been cited as support for this view.

The fourth type of control is interpretive control, which is control that is attained through a search for meaning and understanding. In primary form, interpretive control is expressed in attempts to understand problems in order to solve or to master them, in active behavior, and in attributions to the self's effort and ability. In secondary form, interpretive control is expressed in attempts to understand problems in order to derive meaning and to accept them, in passive, withdrawn, and submissive behavior, and in attributions to severely limited ability, chance, and powerful others. Studies have shown that participants in learned helplessness situations (Coyne, Metalsky, & Lavalle, 1980) became

preoccupied with explaining performance and that participants who have experienced failure show a tendency to seek out causal factors in subsequent tasks (Pittman & Pittman, 1980). Similarly, individuals who are victims of severe accidents or crimes (Bulman & Wortman, 1977) and those who make attributions to severely limited ability search for causal factors and focus on chance. Rothbaum et al. suggest that in future studies, investigators should obtain measures of interpretive activity, and of alterations in goals or values that are a common response to altered availability of outcomes (Ebbensen, Bowers, Phillips, & Snyder, 1975; Mann & Dashiell, 1975).

Arguments for secondary control rely heavily on the person's reinterpretation of the response to uncontrollability and/or failure. The desire for control is assumed to be sufficiently motivating to preclude a helpless or passive stance. Instead, behavior is seen as selectively persistent and effortful. Reliance on chance, on powerful others, increased attributional activity, and adjustment of expectations are central characteristics of secondary control processes. In their model, Rothbaum et al. have argued that use of secondary control responses is encouraged by situational variables. Secondary control is likely to be employed where there is a prolonged failure to obtain desired outcomes via primary control and where personal limitation in obtaining outcomes is seen as permanent.

In summary, the model assumes a motivation to perceive control that is expressed in four types of control: predictive, illusory, vicarious, and interpretive. Each occurs in primary and secondary process form. Both forms constitute active attempts to achieve and maintain control. Because control is assumed to be valued, both primary and secondary responses are expected to be preferred over passive, non-control-seeking responses.

The purpose of this study was to ascertain whether people would show a preference for control-seeking versus non-control-seeking responses. Participants were given an opportunity to express preferences for both active and passive responses when selecting among various options that were open to a character in a story. Subjects read three short stories. Each story was followed by a series of choice points. At these choice points, the participants were asked to select what they felt were appropriate courses of action for the character and then to continue the story. They made these selections where the character had encountered an obstacle in the pursuit of a goal. In one condition, the main character experienced failure due to luck in the pursuit of the goal. In another condition, the main character had a longstanding personal limitation. Preferences were examined where two situational variables were manipulated: failure and availability of options. Failure was introduced in the form either of luck or of longstanding personal limitation. Options were restricted to a choice between a

primary control response or a passive alternative, a secondary control response or a passive alternative, and a primary or a secondary control response.

Although the study focused on the effect of situational variables on preferences, individual differences were also of concern. Rothbaum et al. suggested that tendencies to utilize primary or secondary processes may be associated with personality variables. Primary process control was suggested as more likely to occur in people who are highly motivated to succeed, who have an internal locus of control, and who may be classified as Type A's. Secondary process control was suggested as more likely to occur in people who have a high failure avoidance orientation, an external locus of control, and low self-esteem. Locus of control and self-esteem were selected as individual difference variables in this study. Since locus of control scales do not take into account primary and secondary processes, a new scale measuring preference for primary and secondary process was developed.

Two major predictions were formulated on the basis of arguments advanced by Rothbaum et al. The first hypothesis was that control responses would be preferred over passive responses because "control is so valued, the quest for it is rarely abandoned; instead, individuals are likely to shift from one method of striving for control to another" (p. 7). The second hypothesis was that primary control responses would be preferred over secondary control

responses because "secondary control is most likely after attempts at primary control have failed" (p. 8). In addition, failure conditions were expected to alter control preferences. The third hypothesis was that failure due to luck would increase the selection of primary control responses. Failure due to luck was expected to be a low salient stimulus for internals, because they "typically respond to (low salient obstacles) in a reactant manner, as if they were challenged to exert more primary control" (p. 28). It was expected that the majority of subjects would have an internal locus of control. The fourth hypothesis was that failure due to longstanding personal shortcoming would increase the selection of secondary control responses, because "secondary control . . . is particularly likely in cases of prolonged failure to obtain . . . incentives or (in) cases in which the inability is perceived as permanent" (pp. 28-29).

Of secondary interest were individual differences in response to failure. A fifth hypothesis was that external locus of control and secondary control individuals would show a higher preference for secondary control in the failure luck condition than in the other two conditions. Failure due to luck was expected to have greater impact for these individuals. Their selection of secondary control responses was expected to increase as an attempt to associate with luck. Internal locus of control and primary control individuals were expected to show a higher preference for primary control in the

failure luck condition than in the other two failure conditions. Failure due to luck was expected to increase the use of a preferred control response because it should be a low salient stimulus which increases striving in internals (Glass, 1977). Internal locus of control and primary control individuals were expected to show a higher preference for secondary control in the failure skill condition than in the other two conditions. Failure due to longstanding personal limitation was expected to have greater impact for these individuals. Rothbaum et al. have argued that this type of failure will decrease the use of primary control processes and increase the use of secondary control processes. Realization that primary control is not possible in combination with the opportunity to prepare for attempts at secondary control maximizes use of secondary control.

Method

Subjects

Participants were 324 female students enrolled in undergraduate psychology courses, participating as an option for course credit. The study was conducted in groups of approximately twenty persons. People were asked to indicate their native language, and if it was not English to indicate the length of time they had spoken English. Data from these individuals were not included if, when engaged in conversation with the researcher at the conclusion of the session, they appeared to have difficulty in understanding English.

Materials

Pilot work was conducted to test the method for the thesis research. In an initial study, two measurement devices were developed. The first was a scale that measured preference for primary versus secondary control processes. The second was a story paradigm that measured preference for control where primary and secondary control options as well as passive options are available. A second pilot study was subsequently undertaken to gather data on the reliability and validity of these measurements.

The control preference scale was a 10 item scale in which the reader was asked which of two options most closely reflected his or

her opinions or behaviors. Primary and secondary process forms of control were represented in each pair of options. In the initial pilot study, the control preference scale was a twenty item questionnaire that contained five pairs of options for each of the four types of control. Following an analysis for reliability which determined a biserial correlation between the item and the total best score, this scale was reduced to ten items for the thesis research: 3 predictive, 2 vicarious, 2 illusory and 3 interpretive. The mean correlation value before and after deletion of items was +.247 and +.387, respectively. (See Appendix A for the control scale.)

Responses to the story paradigm were the main dependent measures. In this paradigm, subjects read three short stories that were followed by four choice points requiring some action on the part of the protagonist. At each choice point there was a primary process response option, a secondary process response option, or a passive response option. Opportunities to express preferences for primary and secondary aspects of four types of control were presented at the choice points. The story paradigm allowed measurement of preferences over a variety of situations. (See Appendix B for the stories.)

Pilot Study

Two pilot studies were conducted. Twenty four subjects were recruited for the initial pilot study. As anticipated, preference for control in the story paradigm was related to preference on the control preference scale ($r=+.63$). Primary control was preferred over secondary control (46% and 38% of responses respectively). Ratings of the degree of failure experienced by story characters indicated an awareness of failure as such (combined $\underline{M} = 2.67$, scale: 1<low> to 5<high>).

In a second pilot study, the validity of choice point options was examined. One group of subjects was given descriptions of primary, secondary and passive responses and was asked to classify each option. Because the mean percent correct classification level was 78%, changes to options were deemed unnecessary. A second group of subjects was given descriptions of the four types of control in both primary and secondary form. These subjects were asked to classify pairs of primary and secondary options presented at story choice points as examples of the four types of control. Options at four choice points were replaced. The mean percent correct classification level for retained items was 77%.

In addition to the control preference scale, two further measures of individual differences were obtained: locus of control and self-esteem. The locus of control scale used was a shortened form of a standard scale that deals with control in the personal

sphere (Gurin, Gurin, Lao, & Beattie, 1969). The self-esteem scale used was a twelve item scale (Phillips, 1974) that focuses on self-esteem in the personal sphere, rather than self-esteem as a measure of social adequacy. Validity was determined via correlation (r=+.66) with the Janis and Field (1959) Feelings of Inadequacy scale and reliability was determined by test-retest measurement at a three week interval (r=+.69). (See Appendix C for locus of control and self-esteem scales.)

Procedure

Participants were told that the study was concerned with preferences that people may have when given certain alternatives. They were told that the study contained questions concerning individual opinions on a variety of matters because it was thought that individual differences and attitudes might be related to preferences. Participants were advised that there were no right or wrong answers; their task was to read the materials provided, to consider them carefully and to respond to the questions. Procedures to ensure confidentiality were described after which all participants received the following material: the story paradigm, a questionnaire which was a combination of a manipulation check and a query on subjective experience for story protagonists, the control preference scale, locus of control scale and self-esteem scale. At the end of the session, participants were given a debriefing and

assured of confidentiality. (See Appendix D for manipulation check and query.)

The design of the study was a 3 control options (range of availability) X 3 failure (luck, longstanding personal limitation and no failure control) factorial. Participants read three short stories. Each story was followed by four choice points that presented the story protagonists with optional ways to continue the story. Participants were asked to make what seemed to be appropriate choices for the protagonists. They selected between pairs of options having a primary control response or a secondary control response, a primary control response or a passive response, and a secondary control response or a passive response. In each story the protagonist met an obstacle. Prior to selecting options, participants in the control group were told that the reasons behind the occurrence of the obstacle were unimportant. Participants in the experimental groups read stories with a failure manipulation indicating that the protagonists were facing the obstacle either because of luck or because of some personal shortcoming of a longstanding nature. Participants were randomly assigned to one of these nine groups. Story order and option order were randomized and counterbalanced.

Results

Manipulation Checks

The validation of failure manipulations was determined in ratings of the degree of failure experienced by story characters and in ratings of the degree to which obstacles facing story characters were due to personal failings versus luck or chance. Ratings were obtained on a 5 point scale where 1 was low and 5 was high. A significantly higher degree of failure experienced by story characters was reported for fail skill than for no fail and fail luck conditions ($\underline{M}$ = 2.639, $\underline{M}$ = 2.309, $\underline{M}$ = 2.269, respectively; $\underline{F}(2,321) = 8.891$, $\underline{p} < .001$). The fail skill condition also received a significantly higher rating than either no fail or fail luck conditions for the degree to which obstacles facing story characters were the result of personal shortcoming (skill) versus luck or chance ($\underline{M}$ = 3.846, $\underline{M}$ = 2.282 and $\underline{M}$ = 2.049, respectively), $\underline{F}(2,321) = 73.58$, $\underline{p} < .001$). Failure manipulations were effective because the fail skill condition provided the greatest sense of failure and was judged to result from personal shortcomings in the story character.

Several significant results occurred in measurements of the perceived quality of experience for story characters and of subject familiarity with story elements. Mean values and summary analysis of variance are included in Tables D-1 and D-2 in Appendix D. Because they are not interpretable, they will not be discussed

further. Three measurements of the quality of experience for story characters revealed no significant differences for failure conditions: sense of effectiveness, sense of limitation in course of action and sense of control ($\underline{M}$ = 2.83, $\underline{M}$ = 3.20, $\underline{M}$ = 2.66, respectively).

Major Dependent Measure

Preference for control was measured in terms of the selection of a particular option in the stories. One point was given for selecting the control option where the choice was between a primary control response versus a passive response or between a secondary control response versus a passive response. One point was given for selecting the primary control option where the choice was between a primary control response and a secondary control response. Chi-square analysis revealed preference for control in the selection of story options where the available options were primary control response versus passive response (X^2 (11, $\underline{N}$ = 108) = 107.78, $\underline{p}$ <.000) and where the available options were secondary control response versus passive response (X^2 (11, $\underline{N}$ = 108) = 135.56, $\underline{p}$ <.000). These results support hypothesis 1. As was predicted from the model, primary control responses were preferred where the available options were primary control responses versus secondary control responses (X^2 (11, $\underline{N}$ = 108) = 102.22, $p < .000$). This result supports hypothesis 2.

To examine the data for differences in options and failure conditions, as well as for possible differences in the stories, an analysis of variance was conducted. In this analysis, mean scores with two factors between subjects (failure and options) and one factor within subjects (stories) were examined. There were three levels of failure (no fail, fail luck, fail skill), three levels of options (primary control versus passive option, secondary control versus passive option, primary versus secondary control option), and three stories (story 1, story 2, story 3). All participants selected 4 options in each of the 3 stories, yielding a maximum score of 12. Main effects were observed for options, failure and stories. Mean scores for the primary control versus passive choice condition were significantly higher than for the secondary control versus passive choice condition and the primary versus secondary control condition ($\underline{M}$ = 9.278, $\underline{M}$ = 8.185, $\underline{M}$ = 8.213, respectively; $\underline{F}(2,315)$ = 15.50, $\underline{p} < .001$). The high mean reflects a greater selection of primary control where the alternative option is a passive response rather than a secondary control response. Application of a Newman-Keuls test confirmed that the effect for options was significant ($\underline{p} < .05$). Mean scores for the fail luck condition were significantly higher than for no fail and fail skill conditions which did not differ from each other ($\underline{M}$ = 9.000, $\underline{M}$ = 8.843, $\underline{M}$ = 8.333, respectively; $\underline{F}(2,315)$ = 5.84, $\underline{p} < .003$). The high mean reflects a greater selection of control over passive

options, and of primary over secondary options, which is significant using a Newman-Keuls test ($p < .05$). This result is consistent with hypotheses 1, 2, and 3 and is contrary to hypothesis 4.

Significant differences in control preference were found among the stories. Mean control preference was significantly higher in story 1 than in either story 2 or story 3 ($M = 3.136$, $M = 2.698$, $M = 2.725$, respectively; $F(2,630) = 22.712$, $p < .001$. A significant interaction for options and stories was found for mean control preference. Because these data were not interpretable, they will not be discussed. Mean values and summary analysis of variance for the interaction are presented in Table E-1 in Appendix E.

Analysis of the effects of failure on control preference in each story revealed no effects for failure in stories 1 and 3, contrary to hypotheses 3 and 4. Control preference scores in no fail, fail luck and fail skill conditions in story 1 were $M = 3.111$, $M = 3.321$, and $M = 3.065$, respectively; $F(4,315) = 1.132$, $p < .324$. Control preference scores in no fail, fail luck and fail skill conditions in story 3 were $M = 2.574$, $M = 2.815$, $M = 2.787$, respectively; $F(4,315) = 1.999$, $p < .137$. In story 2, a main effect for failure consistent with hypothesis 3 resulted from higher control preference scores for fail luck over no fail and fail skill conditions ($M = 2.954$, $M = 2.657$, $M = 2.481$, respectively; $F(4,315) = 6.299$, $p < .002$). A significant interaction for failure and options in story 2 ($F(2,315) = 3.023$, $p < .018$), presented in Table

2, reveals the following effect when comparisons are tested with Newman-Keuls test ($p < .05$). Preference for secondary control options given passive alternatives did not differ across failure conditions. Preference for primary control options given passive alternatives was significantly lower in the fail skill condition than in no fail or fail luck conditions, neither of which differed from each other. Preference for primary control over secondary control options was significantly higher in the fail luck than in the no fail condition; preference in no fail and fail skill conditions did not differ. The increase in selection of primary control options in the fail luck condition over the no fail condition is consistent with hypothesis 3.

TABLE 2

Mean Control Preference Scores in Story 2

as a Function of Failure and Options

		Options		
		2/P	1/P	1/2
Failure	No Failure	2.250c	3.19ab	2.583bc
	Fail Luck	2.528bc	3.111ab	3.222a
	Fail Skill	2.417c	2.361c	2.667abc

Key. Maximum Score = 4.
2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. N = 324.
Note. Means having common subscripts do not differ using a Newman-Keuls test ($p < .05$).

Preference for primary, secondary and passive options was also measured for each of the four types of control: predictive, illusory, vicarious and interpretive. Chi-square analysis was conducted on preferences in options conditions for each type of control to determine the significance of obtained frequencies.

Control preference for all options conditions in predictive, vicarious, illusory and interpretive control exceeded $p < .001$. Preference for control was revealed in the selection of primary control responses and of secondary control responses over passive alternatives in each type of control, which is consistent with hypothesis 1. Primary control responses were preferred over secondary control responses in each type of control, which is consistent with hypothesis 2. Chi-square values are summarized in Table 3.

TABLE 3

Chi-square Frequency Values for Control Preference in Options Conditions in Four Types of Control

	Options		
	2/P	1/P	1/2
Predictive	39.78	79.63	48.74
Vicarious	68.30	63.19	54.60
Illusory	51.02	58.00	54.30
Interpretive	72.29	58.00	48.30

Key. 2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. $N = 108$ $df = 3$ $p < .000$.

To examine the data with a more sensitive analysis for differences in preference among options and failure conditions and for stories, an analysis of variance with two factors between subjects (failure and options) and one factor within subjects (stories) was conducted. There were three levels of failure (no fail, fail luck, fail skill), three levels of options (primary

versus passive option, secondary versus passive option, primary versus secondary option), and three stories (story 1, story 2, story 3). Each story contained only one example of each of the four types of control, yielding a maximum score of 3. Main effects for options were observed for all four types of control. Newman-Keuls test ($p < .05$) indicated a significant effect for options in interpretive control ($F(2,315) = 5.964$, $p < .003$) and in illusory control ($F(2,315) = 5.519$, $p < .004$) showing greater selection of primary options given passive alternatives than selection of either primary options given secondary alternatives or of secondary options given passive alternatives, neither of which differed from each other. For predictive control, an effect for options ($F(2,315) = 11.362$, $p < .05$) indicated greater preference for primary options given passive alternatives, next for primary options given secondary alternatives and least for secondary options given passive alternatives, which was significant using a Newman-Keuls test ($p < .05$). For vicarious control, Newman-Keuls test revealed a lower preference for secondary alternatives or preference for secondary options given passive alternatives, neither of which differed from each other ($F(2,315) = 9.767$, $p < .001$). These data are presented in Table 4. Preference for secondary control options given passive alternatives is low in predictive control, high in vicarious control and low for illusory and interpretive control. Preference for primary control options given passive alternatives is high for all

four types of control. Preference for primary control options given secondary control alternatives is moderate for predictive control, and low for vicarious, illusory and interpretive control.

TABLE 4

Mean Control Preference Scores in Four Types of Control: Predictive, Vicarious, Illusory and Interpretive

		Options		
		2/P	1/P	1/2
Type	Predictive	1.963c	2.435a	2.167b
Of	Vicarious	2.352a	2.287a	1.963b
Control	Illusory	1.963b	2.306a	2.047b
	Interpretive	1.907b	2.250a	2.009b

Key. Maximum Score = 3.
2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. N = 324.
Note. Cell means across rows having common subscripts do not differ using a Newman-Keuls test ($p < .05$).

Main effects for failure were observed in two types of control. Preference scores across options conditions reflect preference for primary and secondary options over passive alternatives and preference for primary options over secondary alternatives. For vicarious control, mean preference scores for fail luck were significantly higher than for no fail or fail skill conditions ($\underline{M}$ = 2.333, $\underline{M}$ = 2.157, $\underline{M}$ = 2.111, respectively; $\underline{F}(2,315)$ = 3.093, $\underline{p}$ <.05). Similarly, for interpretive control, mean preference scores for fail luck were higher than for no fail or fail skill conditions ($\underline{M}$ = 2.231, $\underline{M}$ = 1.972, $\underline{M}$ = 1.963, respectively; ($\underline{F}(2,315)$ = 4.477, $\underline{p}$ <.012), a difference which was significant using a Newman-Keuls test ($\underline{p}$ <.05). Increases in mean scores for the fail luck condition are consistent with hypothesis 3.

Several significant effects resulted from the analysis for story effects. Mean values and summary analysis of variance for all effects are included in Appendix E. Main effects for stories in all four types of control are presented in Table E-2, and interactions between options and stories in all four types of control are presented in Tables E-3 to E-6. An interaction between failure and options in illusory control which revealed no significant differences using Newman-Keuls test is presented in Table E-7. Interactions among failure, options and stories in predictive, vicarious and illusory control are presented in Tables E-8 to E-16.

Because these results are not interpretable they will not be discussed.

Analysis of variance of secondary predictions for individual difference in control preference produced no significant results, contrary to hypotheses 5, 6 and 7. The analyses for individual differences were planned comparisons that examined story preferences in individuals selected in two ways. Internal and external individuals were selected by a median split of scores on the locus of control scale. Primary and secondary individuals were selected by a median split of scores on the control preference scale that measures preference for primary or secondary process control. Individual difference predictions were examined for internal and external individuals, and for individuals who were both internal and primary or who were both external and secondary.

To determine relations among individual difference measures, Pearson r correlations were calculated. No correlation was observed between story control preference and scores on locus of control, self-esteem and primary versus secondary control scales. Correlations among locus of control, self-esteem and primary versus secondary control scales did however follow predictions from the model. The correlation between locus of control and self-esteem scores ($r = +.288$) indicated a positive relation between an internal locus of control and high self-esteem. The correlation between scores for self-esteem and control scales ($r = +.366$) indicated a

positive relation between high self-esteem and the selection of primary control over secondary control options. The correlation between scores on the control scale and locus of control scale ($r = +.208$) indicated a positive relation between preference for primary control over secondary control options and an internal locus of control. Means for each scale are presented in Table 5.

TABLE 5

Means for Individual Difference Measures

	M	S.D.
Locus of Control	6.39	2.19
Self Esteem	45.74	7.69
Control Scale	5.40	1.68

Note. Locus of control scale: 10 items, 1 point for each internal option; Max. = 10. Self-esteem scale: 12 items, 5 points for maximum and 1 point for minimum agreement with statement indicative of high self-esteem. Control scale: 10 items, 1 point for each primary option; Max. = 10.

Response to the locus of control scale indicated that the majority of subjects had an internal locus of control. On this 10 point scale where 1 point was given for each internal option selected, 64.3% of subjects scored >6. A similar outcome was observed on the self-esteem scale. On this 12 point scale, where 5

points for maximum and 1 point for minimum agreement with a statement indicative of high self-esteem resulted in a possible range of 12 to 60, 87.3% of subjects scored >37. Response to the control scale revealed equivalent preferences for primary and secondary control. On this 10 point scale where 1 point was given for each primary option selected, 46.6% scored >6.

Discussion

The purpose of this research was to test a recent model for the perception of control. Rothbaum et al. have proposed two ways in which an individual can attain a perception of control that he or she is presumably motivated to seek. Using primary process control, the individual attains a perception of control by effecting some change in the environment. Using secondary process control, the individual attains a perception of control by effecting some change in himself or herself to fit in with the environment. Specifically, this research was designed to test the underlying assumption that control is preferred over a passive response, to test the proposition that secondary control is different from passivity, and to test the proposition that primary control mechanisms are preferred over secondary control mechanisms.

Results from this study provide support for the model. The central assumption that control is preferred was indicated by preference for primary and secondary control options over passive alternatives. The strongest preference for control was seen in selection of primary control options over passive alternatives. In the Rothbaum model, primary process control embodies a striving for mastery and control over the environment common to theories dealing with control. The perception of control attained via primary

process is control in a causal sense. It is control directed toward effecting an outcome. Preference for secondary control options over passive alternatives was clear, although not as strong as preference for primary control options over passive alternatives. Preference for secondary control options given passive alternatives supports the argument for secondary control being distinct from passivity. Unique to the Rothbaum model, secondary process control is described as an alternative means of attaining a perception of control. The perception of control attained via secondary process is control in a coping sense. It is control directed inwards. Because control over the environment is a strongly held value in western society, it is reasonable that preference for primary options exceeded preference for secondary options given passive alternatives. Preference for primary control options also exceeded preference for secondary control options. This result supports the argument that primary control is a first choice option for a perception of control.

Variation in control preference was also observed in the context of failure, a situational variable predicted to alter preferences. Failure due to luck increased control preference, which reflects both preference for primary and secondary control options over passive alternatives and preference for primary control options over secondary control alternatives. Analysis of each of the four types of control revealed higher control preferences for the fail luck condition in vicarious and interpretive control.

Although a number of story differences were not interpretable, one story dealing with a specific prediction did show expected effects. The reason for this is not clear because of variations in character, settings and situations among the stories. One difference among the stories is that story 2 presented the character with a problem that had consequences for another person. In story 1, the character lost contact with a tour. In story 3, the character had to join a group project. In story 2, the character was stranded when a car that she had borrowed broke down. Within story 2, an interaction between failure and options conditions reflected a higher selection of primary control options given secondary control alternatives for the fail luck condition than for the no fail condition; no fail and fail skill conditions did not differ from each other. It also reflected a lower selection of primary control options given passive alternatives for the fail skill condition than for no fail and fail luck conditions, neither of which differed from each other. Failure due to luck may not have increased selection of the primary control option given a passive alternative because of the strong preference for a primary option in the no fail condition. Since most participants had an internal locus of control, the interaction between failure and control option availability seen in this story supports predictions for failure. It also provides information about control preference when a situational variable (fail luck) increases preference for control and the preferred control mechanism

is not available. Where a primary control option was not available, failure due to luck produced a small increase in selection of the secondary control option.

Rothbaum et al. have made two comments relevant to the non-availability of a particular desired control process. As a general principle, they have argued for a motivation to seek a perception of control that should lead to the exercise of whatever control mechanism is available. As a special circumstance, they have commented that where reliance on one particular process is excessive and that process cannot be utilized, passive responses are likely to occur. They have further suggested that an abrogation of control is more likely to be seen in individuals who have come to rely on primary control excessively and who are unable to utilize this mechanism. It would appear that failure due to luck is likely to increase attempts to achieve a perception of control generally whereas failure due to personal limitation may result in an abrogation of control for individuals with an internal locus of control.

Although the basic distinction being examined was between primary and secondary control processes, each of the four types of control was presented in primary and secondary aspects. The author's assumption that preference for a particular control process extends across predictive, vicarious, illusory and interpretive control was not supported. This may have been the result of

variability in the stories, or the result of personal preference for particular control processes within the four types of control. Variability observed in control preference requires some modification of conclusions on the effects of failure and options conditions. For all four types of control, preference for control was strongest where primary process options were paired with passive alternatives. However, two qualifications are in order: preference for primary process was greater in predictive control, and preference for primary and secondary process was equal in vicarious control. Increased preference for control where failure resulted from luck was limited to vicarious and to interpretive control.

Control preference was examined in a story paradigm comprised of different situations and settings in three stories. A large number of interactions between stories and options and failure conditions produced patterns not consistent enough to yield interpretation. One implication is that the stories contain variables relevant to control preference that were unspecified in the model, and/or uncontrollable in the stories. Another possible reason for a lack of correlation might be restriction in the distribution of preference in the stories. However, this seems unlikely because preferences reflected selection of primary and secondary options. Another consideration is that control preference in the stories is not a stable, sensitive individual difference measure.

Correlations were observed among three individual difference measures: locus of control, self-esteem and control preference. As was predicted from the model, preference for primary control was correlated with an internal locus of control and with high self-esteem. While it has been assumed that higher self-esteem is concomitant with an internal locus of control, previous studies comparing black and white subjects have produced conflicting results (Lefcourt, 1984). In blacks, greater self-esteem associated with an external locus of control has been interpreted as reflecting a more veridical perception of current sociopolitical constraints. For the women in this study, high self-esteem and an internal locus of control may reflect recent changes in expectations for influencing events that is reflected in a primary control orientation.

One limitation of this study relates to the format used to examine the model. Rothbaum et al. did not specify whether the use of a particular control process was a function of preference among perceived alternatives or of generation of alternatives, or some combination of these two factors. This thesis research has examined their model for the perception of control by presenting primary and secondary process alternatives in a forced choice format. Insofar as the model can be applied to the selection among alternatives, it has received support in this study. Since the relative value of any particular control process option was seen to vary depending on the alternative with which it was presented, it would be interesting to

look at control preference where options were not restricted. A study which asked subjects to generate alternative responses could address the issue of generation as well as speak to control preference without restrictions. It might also provide additional information about the relationship between preference for control processes and individual difference measures. Although expected correlations among control preference in the stories and locus of control and self-esteem were not observed, predictions for control preference were generally obtained. One possible explanation rests with Rothbaum et al.'s comment that the use of a particular control process is not an individual difference in the same sense as locus of control or self-esteem. They have stated that a maximally adaptive state is one in which individuals are able to employ both mechanisms, with primary control as a first choice. In the thesis research, opportunities for exercising either type of control were limited. A study which required the generation of alternatives could provide additional information concerning personal control-seeking tendencies. It might also explain why scores on the control preference scale were correlated with locus of control and self-esteem. It is conceivable that response to the control scale more closely reflects personal preference.

Response to the story paradigm may reflect personal preference, as well as judgement of what a particular character would do in a given situation where opportunities to exercise a particular control

process were limited. To the extent that the latter occurred, selection of options may be viewed as an exercise in impression formation and/or appropriate story completion. Participants were not given specific instructions to select options on the basis of their own personal preference. They were asked to select the alternative which they found most appropriate, and to make some choices as to how the story would proceed. In conversation with the researcher at the end of the session, some subjects stated that they had been uncertain whether to select options that reflected personal preference or that were appropriate actions for a particular character. If options were not selected on the basis of what subjects themselves would do in the situation, this could explain the lack of correlation between story preferences and individual difference measures.

A second limitation of this research relates to the subject population. This research addressed control preference only in women. Women were selected for study because it was felt that traditional socialization patterns would tend to increase the use of secondary control processes in this group. Since the existence of secondary control processes was a key issue, women were selected in order to maximize the likelihood of observing secondary control preference. A study that examined control preference in older women might reveal greater preference for secondary process control if traditional socialization patterns are in fact relevant to control

preference. Moreover, subsequent studies should be extended to include men. A third limitation of this study is that it cannot address phenomenological considerations in any detail. Ratings of sense of control and sense of effectiveness in the stories were not affected by failure conditions, although failure did influence control preference.

Results from this study support the two process model of the perception of control in that the data show a preference for control over passivity, a distinction between secondary process control and passivity, and a preference for primary process control over secondary process control. Predictions for the influence of a situational variable and an individual difference variable on control preference were also supported. The Rothbaum model for the perception of control would thus appear to merit further investigation.

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APPENDIX A

Control Scale

The control scale is a 10 item scale which presents primary process and secondary process examples of predictive control (items 3, 6 and 7), vicarious control (items 8 and 9), illusory control (items 2 and 5), and interpretive control (items 1, 4 and 10). One point is given for each primary option selected. Participants read the following instructions.

We are interested in studying people's opinions and behaviors across a variety of situations. In this section you will find pairs of statements which are options. Please select the option which best reflects your own opinions or behaviors. If you find that aspects of both options apply, choose the one that best describes your opinions or behaviors.

1. Suppose you are involved in a group project concerning some personally relevant social problem. The work is divided into two sections. Which one would you prefer to work on?

(secondary)	(primary)
the section examining causes	the section examining solutions

2. You are out shopping with someone. This person has bought a lottery ticket and, feeling generous, insists on buying one for

you. You decide to go along with the idea. There are two kinds of tickets. The prizes are the same.

(primary)	(secondary)
I choose the lottery ticket where I fill in a series of numbers.	I choose the lottery ticket where I get the next one in the book.

3. You are taking a course and there is an examination coming up next week. Which course of action do you actually follow?

(secondary)	(primary)
I do all my studying the night before the exam	I review and study a little each night

4. You are taking a course required for your degree. It is within your area of specialization, though not of great interest. Which do you attempt to do?

(primary)	(secondary)
understand the concepts and develop skills to apply the principles on my own later	understand the concepts and accept the fact that this applies to the area

5. You are out shopping one day in a shopping mall and notice lottery tickets for sale. How likely are you to buy a ticket?

(secondary)	(primary)
very likely I would buy a ticket	very unlikely I would buy a ticket

6. Your approach to buying clothes is closest to which of the following?

(secondary)	(primary)
buy one item at a time each for its own merit and do not plan a wardrobe; I have only so much to spend	plan for basic needs and color coordinate to extend my wardrobe and stretch my budget

7. You are doing some sort of a group project. There is a choice of two groups to join. One is composed of individuals who seem more capable than you are. The other is composed of individuals who seem to be similar in ability. Which group do you join?

(primary)	(secondary)
I join the group of more competent others	I join the group of more similar others

8. Do you believe in a supreme being?

(secondary)	(primary)
Yes	No

9. You have invited a friend to go out for lunch. The waiter shows you to a table at the back, close to the kitchen. You are unhappy with this table. The waiter explains that this is the table that has been reserved for you. Do you take this table?

(primary)	(secondary)
no, I will likely request another table	yes, I will likely go to the table I'm directed to

10. You are reading a textbook. At the end of every chapter there is a set of problems as well as a list of terms and definitions. Which do you concentrate on?

(primary)	(secondary)
working on the problems	working on the terms

APPENDIX B

Story Paradigm

The story paradigm is comprised of three stories which are each followed by four choice points. These choice points present the reader with opportunities to select a response for the story character that will continue the story. Primary and secondary process examples of predictive, vicarious, illusory and interpretive control responses as well as examples of passive responses are presented at the choice points. For design purposes, response selection was limited to: primary control response versus passive response with 1 point given for the primary option; secondary control response versus passive response with 1 point given for the secondary option; primary versus secondary control response with 1 point given for the primary option.

Instructions. This study is composed of several sections. In this section you will find three short stories. Accompanying each story are four questions. For these questions, your task will be to make some choices as to how the story will proceed. There are no right or wrong answers. This is basically a matter of personal preference, so all you have to do is select the alternative which you find most appropriate.

Story 1

Karen is on holiday in England and is having a wonderful time. It's morning. Sunshine is streaming in her window. Outside the door she hears footsteps and the clatter of dishes. "Breakfast Miss!" accompanies a loud knock. Karen goes to the door to take her breakfast tray and sits down to a typical English breakfast of tea and muffins. As she eats, Karen makes a list of the many friends promised postcards. She makes a mental note to buy some film for her camera. Karen is a really good photographer and is hoping to get some great shots of London today. She has decided to take a bus tour advertised in the hotel lobby. Dressing quickly, she hurries downstairs to join the others taking the tour. At the desk she turns in her room key and picks up some mail. A note asks her to meet an acquaintance later for dinner. Karen decides this sounds interesting. She asks the clerk where she might find the restaurant and he gives her some directions. On the way out of the lobby, she holds the door open for another guest.

Three additions were made to this basic story to create failure conditions.

Failure Conditions

No Fail: For reasons that are unimportant here, Karen becomes separated from the tour at a changeover stop, virtually at the outset.

Fail Luck: On board the tour, the guide explains they must stop for twenty minutes and reboard a second bus for the city tour. "Those wishing to buy film etc. may do so in the gift shop." Karen decides to do just that. Inside, she locates the film and lines up to pay for it. The line moves really slowly. Karen checks her watch and sees it has stopped. She tries to leave the shop but unfortunately Karen is momentarily trapped as two more tours pour into the shop. She misses her bus.

Fail Skill: On board the tour bus, the guide explains that they must stop for twenty minutes and reboard a second bus for the city tour. "Those wishing to buy film etc. may do so in the gift shop." Karen decides to do just that. Inside, she becomes engrossed in one of the displays. She doesn't even notice that her watch has stopped. As is so typical for her, Karen has somehow lost track of the time. Consequently, she misses her bus.

Choice Points

1. Karen goes to the bus stop area. Some time later she comes into contact with another tour. It is the same company as the one she was with. She approaches the guide.

Vicarious Control:

(Primary) Karen describes her itinerary and attempts to get the guide to help her.

(Secondary) Karen describes her plight and how she has been left here by her tour.

(Passive) Karen watches the guide as she is counting ticket stubs.

2. The guide tells her that she will be unable to join this tour.

Interpretive Control:

(Primary) Karen says she would like to know what to do to solve her problem.

(Secondary) Karen says she would like to know why she can't join this tour.

(Passive) Karen listens to what the guide says and replies "Okay".

3. Karen learns that she will be unable to join this tour because it is fully booked.

Predictive Control:

(Primary) She decides to take the city buses to where her group is scheduled to make an early stop.

(Secondary) She decides to take the next tour bus to where her group is scheduled to make a later stop.

(Passive) She decides to wait here and pick up her tour on the way back to the hotel.

4. Later that evening Karen discusses the events of the day with her friend. The friend comments on the chances of someone rejoining a tour in such a big city at the height of the tourist season.

Illusory Control:

(Primary) Karen says in that type of situation the individual's effort determines the outcome.

(Secondary) Karen says in that type of situation you have to rely on luck to a large extent.

(Passive) Karen says that the city is awfully crowded at this time of year.

Story 2

Linda is going to visit her sister for the weekend. She has just finished packing a suitcase and is getting herself ready. Linda is happy to be going because she considers her sister to be a really good friend. Looking out the window, she sees that it's a dusty windy day. She thinks how pleasant it will be to get away from the usual surroundings for a while. Her roommate has been away visiting friends for the last week so she has decided to find some company. Linda's sister has recently moved and is now living in the country. Because the bus service is known to be poor, Linda will be driving there. She has borrowed the car from her brother. Since she is a pretty good driver, he says he won't worry. Linda is looking forward to the drive because the car is quite comfortable and the stereo is great. Linda's brother arrives to drop off the car. A friend will be by later to pick him up from her place. As she leaves, she waves to her brother and he waves back.

Three additions were made to this basic story to create failure conditions.

Failure Conditions

No Fail: For reasons that are unimportant here, Linda is later stranded with car trouble.

Fail Luck: After driving an hour, Linda notices that the traffic is thinning nicely. At a fork in the road she turns right after consulting a map. This road turns out to be very rough and Linda is forced to slow down to avoid the many potholes. Unfortunately, the biggest one proves unavoidable. Shortly thereafter, the oil gauge begins to flash red. The car starts making a lot of noise and starts to shake. Linda pulls over.

Fail Skill: On the way out of town, Linda stops for gas. The attendant offers to check the oil. Linda says no, don't bother. Actually, Linda never pays any attention to cars except for the gas. After driving an hour she notices the traffic is thinning nicely. At a fork in the road she turns right. Shortly thereafter the oil gauge flashes. The car starts making a lot of noise and starts shaking. Linda pulls over.

Choice Points

1. Illusory Control:

(Primary) She puts up the hood and tries to wave down passing cars.

(Secondary) She puts up the hood and gets back into the car.

(Passive) She sits in the car at the side of the road.

2. Another car stops. In it are a nice looking middle aged couple. The man gets out and walks over to Linda's car.

Vicarious Control:

(Primary) She describes what happened, asks him to help and offers to assist him.

(Secondary) She describes what happened and says while he might know what's wrong she wouldn't.

(Passive) She says that the car isn't working right and waits to see what he says.

3. The man looks under the hood for a while. He mutters something.

Interpretive Control:

(Primary) She says that she'd like to know what the matter is and how to correct it.

(Secondary) She says that she'd like to know how this happened so she can tell her brother.

(Passive) She waits for some sort of suggestion while he continues to look under the hood.

4. The man tells her what he thinks has happened.

Predictive Control:

(Primary) She helps him do something temporary to the car so that she can try to reach her sister.

(Secondary) She asks him to help her get just a little farther to where she can call her sister.

(Passive) She chooses to wait in the car until he contacts a garage to send a tow truck.

Story 3

Janice is taking a course in abnormal psychology which is turning out to be really interesting. As she takes her seat this morning she smiles at some friends. The professor begins the lecture by discussing lists of acceptable topics for papers. Thus far, Janice has had good grades in other psychology courses. This course is a little different because a paper is required, and it is a major one worth forty percent. Looking over the list, Janice decides that choosing a topic right away would be the best strategy. Her pen is out of ink and she borrows one from the person next to her. As she begins to check off interesting topics someone asks the professor if group projects are permissible. After a moment's thought he answers "Yes". He designates which are acceptable topics for groups and adds, "I encourage those of you who take that option to begin work immediately". Janice decides to do a paper by herself because the paper that is most appealing is not a group topic. On the way out of class she asks a friend to meet her later for lunch.

Three additions were made to this basic story to create failure conditions.

Failure Conditions

No Fail: For reasons that are unimportant here, Janice finds she must do a group project.

Fail Luck: Immediately after the lecture, students sign up for topics. Janice goes to the library to research her paper. To her dismay, trips to three libraries produce essentially nothing. One book is on long term loan and call back could take three weeks. Two important articles are at the bindery and a review article is in a discontinued journal. Next class, Janice discusses the problem with the professor. He says to join one of two groups. Both need another person.

Fail Skill: Immediately after the lecture, students begin to sign up for topics. There is a lineup so Janice decides to go for coffee. She plans on going to the professor's office later to sign up. However, Janice forgets. Because as usual she is so disorganized, next class she finds that her topic has been chosen. After class, Janice discusses the problem with the professor. He suggests she could join one of two groups. Both need another person.

Choice Points

1. One group is deciding between two topics. Janice has some knowledge about one of the topics. The other group has already decided on their topic.

Predictive Control:

(Primary) Janice joins the group which has yet to decide their topic and attempts to get the group to select the familiar topic.

(Secondary) Janice joins the group which has decided their topic and attempts to fit in with their plans.

(Passive) Janice waits to see if the professor will suggest a group or if one of them might want her to join them.

2. Janice joins one of the groups. The group is having a discussion about the scope and general direction that the paper should take. The topic is: Advances in Therapy.

Interpretive Control:

(Primary) She says that they should concentrate on applying theories to problems.

(Secondary) She says that they should concentrate on understanding the various theories.

(Passive) She says that the alternatives are all the same to her.

3. Having decided on the scope and general direction of the paper, the group now turns to a discussion of how they will decide who does what.

Illusory Control:

(Primary) She says one section looks easier for her and suggests deciding this way.

(Secondary) She says that her experience is really limited here and suggests drawing straws.

(Passive) She says she will do whichever section the group decides she should do.

4. Janice is sitting in the cafeteria looking over her notes, deciding how much material to include in her section. She notices a couple of classmates sitting with a graduate student who is the Teaching Assistant for this course.

Vicarious Control:

(Primary) Janice joins the others and, after chatting a few minutes, tries to get the T.A. to help her decide her question.

(Secondary) Janice joins the others and talks with the T.A. about the course and the graduate program in psychology.

(Passive) Janice gets another cup of coffee and sits down with the others.

APPENDIX C

Locus of Control Scale

This scale examines locus of control in the personal sphere. It is comprised of 12 items drawn from Rotter's I-E scale. The scale was scored in the internal direction (high score indicates an internal locus of control).

Instructions We are interested in people's attitudes and opinions concerning personally relevant social conditions. This section consists of pairs of statements. Please choose the statement from each pair that most closely fits your opinion or feeling. If you find that you agree with both to a certain extent, choose the one with which you agree most strongly. If you find that you disagree with both to a certain extent, again, choose the one with which you agree the most. The best answer is your own personal opinion.

1.	The idea that teachers are unfair to students is nonsense.	Most students don't realize the extent to which their grades are influenced by accidental happenings.

2.	I have often found that what is going to happen will happen.	Trusting to fate has never turned out as well for me as making a definite decision to take definite course of action.
3.	In the case of the well prepared student there is rarely if ever such a thing as an unfair test.	Many exam questions tend to be so unrelated to course work that studying is really useless.
4.	Becoming a success is a matter of hard work, luck has little or nothing to do with with.	Getting a good job depends on being in the right place at the right time.
5.	It is not always wise to plan too far ahead because many things turn out to be a matter of good or bad fortune.	When I make plans I am almost certain I can make them work.
6.	In my case, getting what I want has little or nothing to do with luck.	Many times we might just as well decide what to do by flipping a coin.

7.	Who gets to be the boss often depends on who was lucky enough to be in the right place first.	Getting people to do the right thing depends on ability, luck has little or nothing to do with it.
8.	Most people don't realize the extent to which their lives are controlled by accidental happenings.	There is really no such thing as luck.
9.	Many times I feel that I have little influence over the things that happen to me.	It is impossible for me to believe that chance of luck plays an important role in my life.
10.	What happens to me is my own doing.	Sometimes I feel that I don't have enough control over the direction my life is taking.

Self-Esteem Scale

This is a 12 item scale developed at this university (Phillips, 1974) as a measure of self esteem in the personal sphere. Validity was determined via correlation with the Janis & Field (1959) Feelings of Inadequacy scale (r=+.67) and reliability was determined by test retest measurement at a three week interval (r=+.69). Each statement was responded to on a five point rating scale such that a strongly supportive answer was indicated by a 4 or 5.

Instructions The questions in this section are concerned with attitudes people have towards themselves. The feelings described are ones which you may have often, sometimes or almost never. Please read each statement carefully and use the following scale to indicate your responses:

1	2	3	4	5
Practically Never	Once in a Great While	Sometimes	Fairly Often	Very Often

1. How often do you feel unhappy?

2. How often do you feel that you really don't care what happens to you?

3. How often do you feel really sure of yourself?

4. Do you ever feel so discouraged with yourself that you wonder whether anything is worthwhile?

5. How often do you feel inferior to most of the people that you know?

6. How often do you feel glad that you are the person you are?

7. How often do you feel that you have a number of good qualities?

8. How often do you feel that you respect yourself?

9. How often do you feel that on the whole you are satisfied with yourself?

10. How often do you think that you are a worthless individual?

11. How often do you feel very happy?

12. How often do you wish that you were someone else?

APPENDIX D

Following the story paradigm, participants were asked to rate the stories on a variety of measures of the quality of experience for story characters. They were also asked to rate the stories for failure, familiarity, identification and difficulty from their own point of view. Ratings were made on 5 point scale:

1	2	3	4	5
Not At All	To A Small Extent	To Some Extent	To A Large Extent	To A Very Great Extent

Participants were asked to look back to see in what order they had read the stories and to note it down in a space provided.

To what extent did the main character experience feelings of failure:

1. in the first story?
2. in the second story?
3. in the third story?

To what extent was the obstacle facing the main character due to her own failings versus luck or chance:

4. in the first story?
5. in the second story?
6. in the third story?

To what extent are you familiar with the obstacle facing the main character?

7. in the first story?
8. in the second story?
9. in the third story?

To what extent could you identify with the main character:

10. in the first story?
11. in the second story?
12. in the third story?

To what extent was the dilemma facing the main character a difficult one?

13. in the first story?
14. in the second story?
15. in the third story?

To what extent would the main character have experienced a sense of effectiveness:

16. in the first story?
17. in the second story?
18. in the third story?

To what extent would the main character have felt able to avoid feelings of disappointment:

19. in the first story?
20. in the second story?
21. in the third story?

To what extent would the main character have felt limited in the courses of action open to her:

22. in the first story?
23. in the second story?
24. in the third story?

To what extent would the main character have experienced a sense of control:

25. in the first story?
26. in the second story?
27. in the third story?

TABLE D-1

Mean Scores for Quality of Experience for Story Characters and for Subject Affinity with Story Elements Applied to Failure

	No Fail	Fail Luck	Fail Skill	F(2,321)	p
Failure	2.309b	2.269b	2.639a	8.891	.001
Fail Personal	2.182b	2.049b	2.846a	73.58	.001
Disappointment	2.880a	2.769a	3.213b	8.84	.001
Identification	3.164a	3.151a	2.660b	14.39	.001
Familiarity	2.885a	2.787a	2.543b	4.33	.014

Key. Ratings on a 5 point scale with 1 representing a low score and 5 representing a high score.

Note 1. Means across rows having common subscripts do not differ using a Newman-Keuls test ($p < .05$).

TABLE D-2

Mean Scores for Quality of Experience for Story Characters Applied to Stories

	Story				
	1	2	3	$F(2,321)$	p
Failure	2.210b	2.444a	2.562a	11.49	.003
Fail Personal	2.664a	2.590b	2.824a	4.25	.015
Difficulty	2.704b	2.951a	3.059a	11.75	.001
Effectiveness	2.651b	2.843a	2.809a	3.65	.03
Limitation	3.093b	3.210ab	3.312a	3.54	.03

Key. Ratings on a 5 point scale with 1 representing a low score and 5 representing a high score.

Note 1. Means across rows having common subscripts do not differ using a Newman-Keuls test ($p < .05$).

APPENDIX E

TABLE E-1

Mean Scores for Control Preference in Stories

		Options		
		2/P	1/P	1/2
	1	3.343a	3.463a	2.602cb
Story	2	2.398c	2.870b	2.824b
	3	2.444c	2.944b	2.787b

Key. Maximum Score = 4. $F(2,315) = 13.90$, $p < .001$. 2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. $N = 324$.

Note. Means having common subscripts do not differ using a Newman-Keuls test ($p < .05$).

TABLE E-2

Mean Control Preference Scores in Four Types of Control Applied to Stories

	Story				
	1	2	3	F(2,315)	p
Predictive	.790a	.636b	.762a	12.48	.001
Vicarious	.833a	.769a	.599b	26.82	.001
Illusory	.731a	.756a	.627b	7.73	.001
Interpretive	.781a	.537b	.738a	30.78	.001

Key. Maximum Score = 1. 1 point for selection of primary and of secondary control options over passive options and 1 point for selection of primary control over secondary control options. N = 324.

Note 1. Cell means across rows having common subscripts do not differ using a Newman-Keuls test ($p < .05$).

TABLE E-3

Mean Control Preference Scores in Predictive Control as a Function of Options and Stories

		Options		
		2/P	1/P	1/2
	1	.833ab	.870a	.667cd
Story	2	.602cd	.722bc	.583cd
	3	.528d	.843ab	.917a

Key. Maximum Score = 1.
2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. $N = 324$.

Note. $F(4,315) = 12.73$, $p < .001$. Means having common subscripts do not differ using a Newman-Keuls test ($p < .05$).

TABLE E-4

Mean Control Preference Scores in Vicarious Control as a Function of Options and Stories

		Options		
		2/P	1/P	1/2
	1	.991a	.935a	.574d
Story	2	.704bcd	.787bc	.815b
	3	.657cd	.565d	.574d

Key. Maximum Score = 1.
2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. $N = 324$.

Note. $F(4,315) = 12.99$, $p < .001$. Means having common subscripts do not differ using a Newman-Keuls test ($p < .05$).

TABLE E-5

Mean Control Preference Scores in Illusory Control as a Function of Options and Stories

		Options		
		2/P	1/P	1/2
	1	.741ab	.750ab	.704ab
Story	2	.806a	.843a	.620b
	3	.417c	.713ab	.750ab

Key. Maximum Score = 1.
2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. N = 324.

Note. $F(4,315) = 10.33$, $p < .001$. Means having common subscripts do not differ using a Newman-Keuls test ($p < .05$).

TABLE E-6

Mean Control Preference Scores in Interpretive Control as a Function of Options and Stories

		Options		
		2/P	1/P	1/2
	1	.778a	.907a	.657b
Story	2	.287d	.519c	.806a
	3	.843a	.824a	.546bc

Key. Maximum Score = 1.

2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. N = 324.

Note. $F(4,315) = 30.40$, $p < .001$. Means having common subscripts do not differ using a Newman-Keuls test ($p < .05$).

TABLE E-7

Mean Control Preference Scores in Illusory Control as a Function of Failure and Stories

		Story		
		1	2	3
Failure	No Fail	.759ab	.731ab	.583b
	Fail Luck	.759ab	.852a	.583b
	Fail Skill	.676ab	.685ab	..713ab

Key. Maximum Score = 1.

Mean scores for control preference indicate a composite score for choice between a primary control versus a passive response and a secondary control versus a passive response, with 1 point given for control options; and for a choice between a primary versus a secondary control response, with 1 point given for primary option. N = 324.

Note. F(4,315) = 3.729, p <.005. Means having common subscripts do not differ using a Newman-Keuls test (p <.05).

TABLE E-8

Mean Control Preference Scores in Predictive Control:

Options X Stories in No Fail Condition

		Options		
		2/P	1/P	1/2
	1	.944a	.833a-h	.528d-h
Story	2	.472egh	.917ab	.611a-h
	3	.417h	.806a-h	.889abc

Key. Maximum Score = 1.

2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. N = 324.

Note. $F(8,630) = 3.498$, $p < .001$. Means having common subscripts do not differ using a Newman-Keuls test ($p < .05$).

TABLE E-9

Mean Control Preference Scores in Predictive Control: Options X Stories in Fail Luck Condition

		Options		
		2/P	1/P	1/2
	1	.806a-e	.917ab	.806a-e
Story	2	.556c-h	.667a-h	.667a-h
	3	.556c-h	.833a-d	.917ab

Key. Maximum Score = 1.

2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. N = 324.

Note. F = 3.498, p <.001. Means having common subscripts do not differ using a Newman-Keuls test (p <.05).

TABLE E-10

Mean Control Preference Scores in Predictive Control: Options X Stories in Fail Skill Condition

		Options		
		2/P	1/P	1/2
	1	.750a-g	.861a-d	.667a-h
Story	2	.778a-g	.583b-h	.472egh
	3	.611a-h	.889abc	.944a

Key. Maximum Score = 1.

2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. N = 324.

Note. F(8,630) = 3.498, p <.001. Means having common subscripts do not differ using a Newman-Keuls test (p <.05).

TABLE E-11

Mean Control Preference Scores in Vicarious Control: Options X Stories in No Fail Condition

		Options		
		2/P	1/P	1/2
	1	.972abc	.889a-d	.667b-f
Story	2	.639def	.833a-e	.750a-f
	3	.611def	.583def	.528ef

Key. Maximum Score = 1.

2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. N = 324.

Note. $F(8,630) = 2.378$, $p < .016$. Means having common subscripts do not differ using a Newman-Keuls test ($p < .05$).

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TABLE E-12

Mean Control Preference Scores in Vicarious Control: Options X Stories in Fail Luck Condition

		Options		
		2/P	1/P	1/2
	1	1.000a	.972ab	.500f
Story	2	.722a-f	.889a-d	.972ab
	3	.806a-f	.639def	.500f

Key. Maximum Score = 1.

2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. N = 324.

Note. $F(8,630) = 2.378$, $p < .016$. Means having common subscripts do not differ using a Newman-Keuls test ($p < .05$).

TABLE E-13

Mean Control Preference Scores in Vicarious Control: Options X Stories in Fail Skill Condition

		Options		
		2/P	1/P	1/2
	1	1.000a	.944abc	.556def
Story	2	.750a-f	.639b-f	.722a-f
	3	.556def	.472f	.694a-f

Key. Maximum Score = 1.

2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. N = 324.

Note. $F(8,630) = 2.378$, $p < .016$. Means having common subscripts do not differ using a Newman-Keuls test ($p < .05$).

TABLE E-14

Mean Control Preference Scores in Illusory Control: Options X Stories in No Fail Condition

		Options		
		2/P	1/P	1/2
	1	.750ab	.750ab	.778ab
Story	2	.833a	.917a	.444bcd
	3	.361cd	.667ab	.722ab

Key. Maximum Score = 1.

2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. N = 324.

Note. $F(8,630) = 2.139$, $p < .03$. Means having common subscripts do not differ using a Newman-Keuls test ($p < .05$).

TABLE E-15

Mean Control Preference Scores in Illusory Control:

Options X Stories in Fail Luck Condition

		Options		
		2/P	1/P	1/2
	1	.778ab	.750ab	.750ab
Story	2	.944a	.917a	.694ab
	3	.333d	.694ab	.722ab

Key. Maximum Score = 1.

2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. N = 324.

Note. $F(8,630) = 2.139$, $p < .03$. Means having common subscripts do not differ using a Newman-Keuls test ($p < .05$).

TABLE E-16

Mean Control Preference Scores in Illusory Control:

Options X Stories in Fail Skill Condition

		Options		
		2/P	1/P	1/2
	1	.694ab	.750ab	.583a-d
Story	2	.639abc	.694ab	.722ab
	3	.556a-d	.778ab	.806ab

Key. Maximum Score = 1.

2/P indicates a choice between a secondary control versus a passive response with 1 point given for the secondary option; 1/P indicates a choice between a primary control versus a passive response with 1 point given for the primary option; 1/2 indicates a choice between a primary versus a secondary control response with 1 point given for the primary option. N = 324.

Note. $F(8,630) = 2.139$, $p < .03$. Means having common subscripts do not differ using a Newman-Keuls test ($p < .05$).